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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/758,599	01/16/2004	Danny Grant	IMMR-064/00US	5397

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EXAMINER	
LAO, LUN YI	

ART UNIT	PAPER NUMBER
2629	

DATE MAILED: 06/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/758,599	GRANT, DANNY	
	Examiner	Art Unit	
	LUN-YI LAO	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 March 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31 and 37-46* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-31 and 37-46* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *12/23/2005, 3/31/2006*
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claim 46 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The recitation of "the processor configured to output a position based force signal when the manipulandum is sensed throughout a detent and configured to output a predetermined time-based force signal only once when the manipulandum is within the detent" in claim 46 does not disclosed in the specification. The specification discloses the processor configured to output a position-based force signal when the manipulandum is within the detent(see figures 10A-13 and paragraphs 82-85).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-22, 24-31 and 37-46 rejected under 35 U.S.C. 103(a) as being unpatentable over Rosenberg(5,959,613) in view of Levin et al(6,154,201).

As to claims 1-22, 24-31 and 37-46, Rosenberg teaches an apparatus for providing haptic effects to a user comprising: a manipulandum being movable between a first position(182) and a second position(a position in a spring region 186) (see figures 1-7c; column 13, lines 55-68 and column 14, lines 1-9); a sensor(28) configured to output a position signal associated with a position of the manipulandum; and an actuator, the actuator(30) being configured to apply haptic feedback to the manipulandum based on the position signal(see figure 3b; column 13, lines 55-68 and column 14, lines 1-17).

Rosenberg fails to point out a predetermined time-based force component is applied to the position based force component to generate a haptic effect when the position signal associated the manipuladum at a threshold position

Levin et al teach a predetermined time-based force component(see figure 7A) is applied to the position based force component to generate a haptic effect when the position signal associated the manipuladum at a threshold position(e.g. P4)(see figures

6B-8; column 16, lines 58-68; column 17 and column 18, lines 1-52). It would have been obvious to have modified Rosenberg with the teaching of Levin et al, so as to enhance the haptic feedback(see Rosenberg's figures 5-6; column 15, lines 59-68 and column 1-47).

As to claim 15, Rosenberg et al as modified teach a method for altering the position-based force(neutral region(182) and a spring region(186)(see figure 3b; column 13, lines 55-68 and column 14, lines 1-17) by incorporating a predetermined time-based force(206)(see figures 5-6) when the manipulandum reaches the second position(the position in the spring region 186)(see figures 3b, 5-6; column 13, lines 55-68; column 14, lines 1-17; column 15, lines 59-68 and column 16, lines 1-65).

As to claim 26, Rosenberg as modified teaches an actuator(30) for outputting a haptic feedback sensation having a predetermine time-based component(206)(see figures 4-6) applied to the bias force when the position signal represents the manipulandum at the second position(the position in the spring region 186)(see figures 3b, 5-6; column 13, lines 55-68; column 14, lines 1-17; column 15, lines 59-68 and column 16, lines 1-65).

As to claim 37, Rosenberg as modified teaches a method for outputting a first haptic feedback in response to the manipulandum being between the first and second positions(a first position in the neutral region(182) and a second position in the saturation region(184))(see figure 3b; column 13, lines 55-68 and column 14, lines 1-17); and outputting a second haptic feedback in response to the manipulandum being disposed in the second position, the second haptic feedback having the position-based

component(see figure 3b) and a predetermined time-based component(206)(see figures 5-6; column 15, lines 59-68 and column 16, lines 1-65).

As to claim 4, Rosenberg teaches the predetermined time-based component includes a series of time-based waveforms(see figures 4-7C).

As to claim 5, Rosenberg teaches the predetermined time-based component is represented by at least one of: a saw tooth wave, a square wave, a pulse, a full sine wave and a triangle wave(see figures 4a-5; column 14, lines 45-57; column 15, lines 66-68 and column 16, lines 1-7).

As to claims 6, 20, 22, 24, 26, 27-28 and 30, Rosenberg teaches the haptic feedback being a first haptic feedback, the apparatus further comprising: a biasing element(virtual spring, 186)) configured to bias the manipulandum in the first position, the actuator being configured to apply a second haptic feedback to the manipulandum when the threshold position is surpassed as the manipulandum moves from the second position to the first position(182)(see figures 1-3b; column 13, lines 26-68 and column 14, lines 1-9).

As to claims 7 and 13, Rosenberg teaches the haptic feedback being a first haptic feedback having a first predetermined time-based component, the apparatus further comprising: a biasing element(spring) configured to bias the manipulandum in the first position, the actuator(30) being configured to apply a second haptic feedback having a second predetermined time-based component to the manipulandum when the threshold position is surpassed as the manipulandum moves from the second position to the first position, the first predetermined time-based waveform and the second

predetermined time-based waveform being different(see figure 7C and column 19, lines 18-29).

As to claims 8 and 16, Rosenberg teaches the threshold position being a first threshold position, wherein: the manipulandum is moveable from the second position(end of the region 186) to a third position(the beginning of the region 184), the third position being associated with a second threshold position; and the actuator being configured to apply a second haptic feedback based on a position signal associated with the second threshold position, the second haptic feedback having the position-based component and a second predetermined time-based component(see figures 1-2, 3b; 4-6; column 13, lines 55-68; column 14 and column 15, lines 1-10).

As to claims 9, 17 and 18, Rosenber teaches the threshold position being a first threshold position(182), wherein: the manipulandum is moveable from the second position(the beginning of the region 186) to a third position(the end of the region 186), and from a third position to a fourth position(the beginning of the region 184), the third position being associated with a second threshold position and the fourth position being associated with a third threshold position; and the actuator being configured to apply a second haptic feedback based on a position signal associated with the second threshold position and a third haptic feedback based on a position signal associated with the third threshold position, the second haptic feedback having the position-based component and a predetermined time-based component associated with the third position, the third haptic feedback having the position-based component and a

predetermined time-based component associated with the fourth position((see figures 1-2, 3b; 4-6; column 13, lines 55-68; column 14 and column 15, lines 1-10).

As to claims 10-12 and 31, Rosenberg et al the manipulandum is a button on a mouse on a computer mouse and a game controller and a disposed on a communication device(see figures 1-2 and column 1, lines 20-40).

As to claim 14, Rosenberg et al teach a controller(12)(see figures 1-2; column 9, lines 10-68 and column 10, lines 1-13).

As to claim 22, Rosenberg et al teach the predetermine time-based component (square waveform or sinusoidal waveform or triangular waveform) stored within a processor-readable medium in response to a position signal(see figures 4a-6; column 15, lines 59-68 and column 16, lines 1-8).

As to claim 25, Rosenberg et al teach a characteristic of the haptic feedback in response to the velocity of the manipulandum(see figures 3a-5; column 13, lines 7-25; column 14, lines 10-30).

As to claim 29, Rosenberg et al teach a voice-coil type actuator(see column 9, lines 53-57).

As to claims 37 and 41-44, Rosenberg et al teach a manipulandum being rotated from a first position to a second position and the manipulandum has been rotated between a second position and a third posiiton(see figures 1-3b; column 11, lines 61-68; column 12, lines 1-22; column 13, lines 55-68 and column 14, lines 1-17).

As to claim 38, Rosenberg et al teach a plurality of time based waveforms(square, or sinusoidal or triangular or sawtooth waveforms)(see figures 5-7C).

As to claims 3 and 39, Rosenberg teaches the predetermined time-based component includes a single time-based waveform(see figures 4-7C and column 14, lines 53-64).

As to claim 40, Rosenberg teaches a predetermined time-based waveform having a period of about 1ms to 300ms(about 50ms)(see figures 6-7C and column 16, lines 48-59).

As to claims 2 and 45, Rosenberg teaches the manipulandum is a knob and the position-based component is a detent profile(see figures 2, 4a-6; column 11, lines 18-35; column 14, lines 56; column 15, lines 59-68 and column 16, lines 1-7).

As to claim 46, Rosenberg teaches an apparatus for providing haptic sensations to a user comprising a manipulandum; a processor(26, 12) for receiving position signal relating to movement of the manipulandum, the processor(26, 12) for outputting a position based force signal when the manipulandum is sensed throughout a detent and an actuator(30) for outputting a first haptic feedback force(saturation regions 184) to the manipulandum upon receiving the position based force signal and outputting a second hapic(spring regions 186) to the manipulandum upon receiving the position based force signal and the predetermined time-based force signal when the manipulandum reaches a threshold position within the detent(see figures 1, 3, 5-6; column 13, lines 55-68; column 14, lines 1-17; column 15, lines 59-68 and column 16, lines 1-65).

Rosenberg fails to disclose a processor for outputting a predetermined time-based force signal only once when the manipulandum is within the detent

Levin et al teach a processor(202) for outputting a predetermined time-based force signal(see figure 7A) once when the manipulandum is within the detent(see figures 6B-8; column 16, lines 58-68; column 17 and column 18, lines 1-52). It would have been obvious to have modified Rosenberg with the teaching of Levin et al, so as to enhance the haptic feedback.

5. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rosenberg(5,959,613) in view of Levin et al and Rosenberg(6,243,078).

Rosenberg(5,959,613) as modified fails to disclose a physical spring.

Rosenberg teaches a force feedback button(16) having a physical spring(see figures 1-2, 4 and column 6, lines 31-68). It would have been obvious to have modified Rosenberg(5,959,613) with the teaching of Rosenberg(6,243,078), since Rosenberg(6,243,078) disclosed a physical spring could be replaced by a virtual spring(see column 8, lines 56-68 and column 9, lines 1-15).

Response to Arguments

6. Applicant's arguments with respect to claims 1-31, 37-46 have been considered but are moot in view of the new ground(s) of rejection.

Applicant argues that Rosenber does not teach a predetermined time based force component which is applied to a position based force component when the

feedback device is sensed to be at a particular position on pages 12-13. However, the combination of Rosenber and Levin et al teach such feature(see the rejection above).

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lun-yi Lao whose telephone number is 571-272-7671. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 571-272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jun 18, 2006

Lun-yi Lao
Primary Examiner